IN THE CLAIMS:

Please enter the following newly added claims:

54. The isolated and purified DNA molecule of claim 31, wherein the linked sequence is the plant 4-coumarate Co-enzyme A ligase gene or another gene of interest.

55. The isolated and purified DNA molecule of claim 29, wherein the transcriptional regulatory region is a sequence as shown in SEQ ID NO: 5.

56. The isolated and purified DNA molecule of claim 29, wherein the transcriptional regulatory region is promoter fragment.

57. The isolated and purified DNA molecule of claim 56, wherein the promoter fragment is selected from the group consisting of at least one of a cis-acting element, a box P sequence motif, a box A sequence motif or a box L sequence motif, and combinations thereof.

58. The isolated and purified DNA molecule of claim 31, wherein the DNA segment is expressed in the plant xylem for engineering agronomically desirable traits selected from the group consisting of altered lignin content, increased or decreased coniferyl and sinapyl alcohol units in the lignin structure, altered cellulose content, altered growth, or altered cellulose content and combinations thereof.

59. An expression cassette as set forth in claim 45, wherein the 4-coumarate Co-enzyme A ligase gene is a lignin-specific gene.

60. An expression cassette as set forth in claim 45, wherein the DNA segment comprises a 4-coumarate Co-enzyme A ligase open reading frame.

61. An expression cassette as set forth in claim 45, wherein the DNA segment comprises an open reading frame from a gene of interest.

62. An expression cassette as set forth in claim 45, wherein the transcriptional control region is a xylem-specific gene promoter that directs the expression of a gene in the xylem of a plant.

63. An expression cassette as set forth in claim 45, wherein the transcriptional control region is a sequence as shown in SEQ ID NO: 5.

64. An expression cassette as set forth in claim 45, wherein the transcriptional control region is a promoter fragment.

65. An expression cassette as set forth in claim 64, wherein the promoter fragment is selected from the group consisting of a cis-acting element, a box P sequence motif, a box A sequence motif or a box L sequence motif, and combinations thereof.

66. An expression cassette as set forth in claim 62, wherein the xylem-specific plant gene expression is for engineering agronomically desirable traits selected from the group consisting of altered lignin content, increased or decreased coniferyl and sinapyl alcohol units in the lignin structure, altered cellulose content, altered growth, or altered cellulose content and combinations thereof.

67. A polynucleotide sequence comprising a nucleotide sequence of a 4CL promoter.

68. A polynucleotide as set forth in claim 67, wherein the promoter is a tissue-specific promoter.

69. A polynucleotide as set forth in claim 67, wherein the promoter is a xylem-specific promoter.

70. A polynucleotide as set forth in claim 69, wherein the xylem-specific promoter is used to direct the expression of genes in the xylem for engineering agronomically desirable traits selected from the group consisting of altered lignin content, increased or decreased coniferyl and sinapyl alcohol units in the lignin structure, altered cellulose content, altered growth, or altered cellulose content and combinations thereof.

71. A polynucleotide comprising a sequence as shown in SEQ ID NO: 5, wherein SEQ ID NO: 5 is characterized by having promoter activity.

72. A polynucleotide sequence as set forth in claim 71, wherein the promoter activity is xylem-specific.

73. A polynucleotide sequence as set forth in claim 71, wherein the promoter is encompassed by 5' flanking region.

74. A polynucleotide sequence as set forth in claim 73, wherein the 5' flanking region is a promoter fragment.

75. A polynucleotide sequence as set forth in claim 73, wherein the promoter fragment is selected from the group consisting of a cis-acting element, a box P sequence motif, a box A sequence motif or a box L sequence motif, and combinations thereof.

76. A gene promoter, comprising:

a polynucleotide sequence shown as SEQ ID NO: 5; or a promoter fragment thereof; such that when gene promoter is operably linked with an open reading frame of interest and is integrated into a plant genomic DNA, the gene promoter targets the expression of the open reading frame of interest to the xylem.

77. A gene promoter as set forth in claim 76, wherein the promoter fragment is selected from the group consisting of a cis-acting element, a box P sequence motif, a box A sequence motif or a box L sequence motif, and combinations thereof.